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Listing of Claims

This listing of claims will, without prejudice, replace all prior versions and listings of claims in the application:

1. (Previously presented) A non-aqueous composition for cleaning microelectronic substrates comprising the following components:
 - (a) a nucleophilic amine,
 - (b) a moderate to weak acid having a strength expressed as a "pKa " for the dissociation constant in aqueous solution of from about 1.2 to about 8,
 - (c) a compound selected from the group consisting of an aliphatic alcohol, diol, polyol or glycol ether, and
 - (d) an organic co-solvent,and the weak acid component (b) is present in the composition in an amount such that the equivalent mole ratio of acid/amine is greater than .75 and the pH of the composition is from about pH 4.5 to 9.5.
2. (Currently amended) A composition according to claim 1 comprising from about 1% to about 50% component (a), from about ~~10%~~ 20% to about ~~80%~~ 60% of component (c), and from about ~~20%~~ 25% to about ~~80%~~ 75% of component (d), the percentages being weight % based on the total weight of the composition.
3. (Original) A composition according to claim 1 wherein the nucleophilic amine component is at least one amine selected from the group consisting of 1-amino-2-propanol, 2-(2-aminoethoxy)ethanol, 2-aminoethanol, 2-(2-aminoethylamino)ethanol, 2-(2-aminoethylamino)ethylamine, diethanolamine and triethanolamine.
4. (Currently amended) A composition according to claim 1 wherein component (c) is at least one compound selected from the group consisting of isopropanol,

butanol, ethylene glycol, diethylene glycol, triethylene glycol, polyethylene glycol, propylene glycol, dipropylene glycol, tripropylene glycol, 1,3-propanediol, 2-methyl-1,3-propanediol, 2-butene-1,4-diol, 2-methyl-2,4-pentanediol, hexanediol, glycerol, ethylene glycol ~~monomethyl ether~~ diethylene glycol monomethyl ether, propylene glycol dimethyl ether, and 2-(2-butoxyethoxy)-ethanol.

5. (Original) A composition according to claim 1 wherein the organic co-solvent is a co-solvent having a solubility parameter of from about 8 to about 15.
6. (Original) A composition according to claim 5 wherein the co-solvent is at least one compound selected from the group consisting of 2-pyrrolidinone, 1-methyl-2-pyrrolidinone, 1-ethyl-2-pyrrolidinone, 1-propyl-2-pyrrolidinone, 1-hydroxyethyl-2-pyrrolidinone, a dialkyl sulfone, dimethyl sulfoxide, a tetrahydrothiophene-1,1-dioxide, dimethylacetamide and dimethylformamide.
7. (Currently amended) A composition according to Claim 6 wherein the solvent is selected from the group consisting of sulfolane and 1-methyl-2-pyrrolidinone, the nucleophilic amine is selected from the group consisting of monoethanolamine and 1-amino-2-propanol, component (c) is selected from the group consisting of ethylene glycol, propylene glycol, 2-methyl-2,4-pentanediol, glycerol, ~~2-butene-1,4-diol~~ 2-butene-1,4-diol, isopropanol and 2-(2-butoxyethoxy)ethanol.
8. (Original) A composition according to claim 1 wherein the acid component (b) is at least one acid having a pKa value of from 2 to 5.
9. (Original) A composition according to claim 7 wherein the acid component (b) is at least one acid having a pKa value of from 2 to 5.
10. (Original) A composition according to claim 1 wherein component (b) comprises at least one acid selected from the group consisting of acetic acid, propanoic

acid, malonic acid, phenylacetic acid and hypophosphorus acid.

11. (Original) A composition according to claim 7 wherein component (b) comprises at least one acid selected from the group consisting of acetic acid, propanoic acid, malonic acid, phenylacetic acid and hypophosphorus acid.
12. (Original) A composition according to claim 1 wherein the nucleophilic amine comprises monoethanolamine, the co-solvent comprises 1-methyl-2-pyrrolidinone, the compound of component (c) is ethylene glycol and the acid of component (b) is acetic acid.
13. (Withdrawn) A process for cleaning a microelectronic substrate without producing any substantial metal corrosion, the substrate containing photoresist polymeric material and a metal, the process comprising contacting the substrate with a non-aqueous cleaning composition for a time sufficient to clean the substrate, wherein the cleaning composition comprises:
 - (a) a nucleophilic amine,
 - (b) a moderate to weak acid having a strength expressed as a "pKa" for the dissociation constant in aqueous solution of from about 1.2 to about 8,
 - (c) a compound selected from the group consisting of an aliphatic alcohol, diol, polyol or glycol ether, and
 - (d) an organic co-solvent,and the weak acid component (b) is present in the cleaning composition in an amount such that the equivalent mole ratio of acid/amine is greater than .75 and the pH of the composition is from about pH 4.5 to 9.5.
14. (Withdrawn-currently amended) A process according to claim 13 wherein the cleaning composition comprises from about 1% to about 50% component (a), from about ~~10%~~ 20% to about ~~80%~~ 60% of component (c), and from about ~~20%~~ 25% to about ~~80%~~ 75% component (d), the percentages being weight % based

on the total weight the composition.

15. (Withdrawn) A process according to claim 13 wherein the nucleophilic amine component is at least one amine selected from the group consisting of 1-amino-2-propanol, 2-(2-aminoethoxy)ethanol, 2-aminoethanol, 2-(2-aminoethylamino)ethanol, 2-(2-aminoethylamino)ethylamine, diethanolamine and triethanolamine.
16. (Withdrawn) A process according to claim 13 wherein component (c) is at least one compound selected from the group consisting of isopropanol, butanol, ethylene glycol, diethylene glycol, triethylene glycol, polyethylene glycol, propylene glycol, dipropylene glycol, tripropylene glycol, 1,3-propanediol, 2-methyl-1,3-propanediol, 2-butene-1,4-diol, 2-methyl-2,4-pentanediol, hexanediol, glycerol, ethylene glycol monomethyl ether diethylene glycol monomethyl ether, propylene glycol dimethyl ether, and 2-(2-butoxyethoxy)-ethanol.
17. (Withdrawn) A process according to claim 13 wherein the organic co-solvent is a co-solvent having a solubility parameter of from about 8 to about 15.
18. (Withdrawn) A process according to claim 17 wherein the co-solvent is at least one compound selected from the group consisting of 2-pyrrolidinone, 1-methyl-2-pyrrolidinone, 1-ethyl-2-pyrrolidinone, 1-propyl-2-pyrrolidinone, 1-hydroxyethyl-2-pyrrolidinone, a dialkyl sulfone, dimethyl sulfoxide, a tetrahydrothiophene-1,1-dioxide, dimethylacetamide and dimethylformamide.
19. (Withdrawn-currently amended) A process according to Claim 18 wherein the solvent is selected from the group consisting of sulfolane and 1-methyl-2-pyrrolidinone, the nucleophilic amine is selected from the group consisting of monoethanolamine and 1-amino-2-propanol, component (c) is selected from the group consisting of ethylene glycol, propylene glycol, 2-methyl-2,4-pentanediol,

glycerol, ~~2-butene-1,3-diol~~ 2-butene-1,4-diol, isopropanol and 2-(2-butoxyethoxy)ethanol.

20. (Withdrawn) A process according to claim 13 wherein the acid component (b) is at least one acid having a pKa value of from 2 to 5.
21. (Withdrawn) A process according to claim 19 wherein the acid component (b) is at least one acid having a pKa value of from v 2 to 5.
22. (Withdrawn) A process according to claim 13 wherein component (b) comprises at least one acid selected from the group consisting of acetic acid, propanoic acid, malonic acid, phenylacetic acid and hypophosphorus acid.
23. (Withdrawn) A process according to claim 19 wherein component (b) comprises at least one acid selected from the group consisting of acetic acid, propanoic acid, malonic acid, phenylacetic acid and hypophosphorus acid.
24. (Withdrawn) A process according to claim 13 wherein the nucleophilic amine comprises monoethanolamine, the co-solvent comprises 1-methyl-2-pyrrolidinone, the compound of component (c) is ethylene glycol and the acid of component (b) is acetic acid.
25. (Withdrawn) A process according to claim 13 wherein the microelectronic substrate is a substrate for a flat panel display.
26. (Withdrawn) A process according to claim 25 wherein the substrate has an aluminum/neodymium layer.
27. (Previously presented) A non-aqueous composition for cleaning microelectronic substrates consisting essentially of the following components:

- (a) a nucleophilic amine,
 - (b) a moderate to weak acid having a strength expressed as a "pKa " for the dissociation constant in aqueous solution of from about 1.2 to about 8,
 - (c) a compound selected from the group consisting of an aliphatic alcohol, diol, polyol or glycol ether,
 - (d) an organic co-solvent, and
 - (e) optionally other components selected from the group consisting of corrosion inhibitors and non-corrosive surfactants,
- and the weak acid component (b) is present in the composition in an amount such that the equivalent mole ratio of acid/amine is greater than .75 and the pH of the composition is from about pH 4.5 to 9.5.

28. (Withdrawn) A process for cleaning a microelectronic substrate without producing any substantial metal corrosion, the substrate containing photoresist polymeric material and a metal, the process comprising contacting the substrate with a non-aqueous cleaning composition for a time sufficient to clean the substrate, wherein the cleaning composition comprises a composition of claim 27.

Applicant's claims are directed to a **non-aqueous** composition for cleaning microelectronic substrates that comprises:

the following components:

- (f) a nucleophilic amine,
- (g) a moderate to weak acid having a strength expressed as a "pKa " for the dissociation constant in aqueous solution of from about 1.2 to about 8,
- (h) a compound selected from the group consisting of an aliphatic alcohol, diol, polyol or glycol ether, and
- (i) an organic co-solvent,

and the weak acid component (b) is present in the composition in an amount such that the equivalent mole ratio of acid/amine is greater than .75 and the pH of the composition is from about pH 4.5 to 9.5.

The Office Action again admits, at page 5, second full paragraph) that the Koito et al. disclosure does "not teach, with sufficient specificity, a composition having the specific pH containing a nucleophilic amine, a moderate to weak acid, a glycol ether, a co-solvent, and the other requisite components of the composition in the specific proportions as recited by the instant claims."

Despite these glaring deficiencies in the reference disclosure, the PTO still rejects the claims over the Koito et al. disclosure on the unsupported basis that all these deficiencies in the Koito et al. reference disclosure is simply cured by **"the broad teachings of Koito"** would make the modification obvious to one skilled in the art. The PTO must read the disclosure of Koito et al **in context, not merely try to extract some broad contention therefrom merely to attempt to meet Applicant's invention.** Clearly, the PTO only makes this contention on the basis of having read Applicant's disclosure since absolutely nothing except the hindsight of Applicant's disclosure suggests all these criteria in common. However, the specific suggestion for all such parameters to be selected and met must come from the teaching in the prior art, without hindsight reference to Applicant's disclosure. Such hindsight reconstruction of the prior art is improper and